

Rhode Island.—Block Island, 15th.
South Carolina.—Aiken, 1st; Spartanburg, 2d, 3d, 5th, 6th, 9th, 10th, 19th, 26th; Stateburg, 2d, 6th.
Tennessee.—1st, 2d, 4th, 5th, 6th, 19th, 24th.
Texas.—Palestine, 1st; Fort Davis, 1st, 4th, 23d.
Utah.—9th, 12th, 13th, 16th, 21st, 22d.
Vermont.—1st, 2d, 3d, 6th, 7th, 8th, 12th, 13th, 14th, 18th, 19th, 20th, 22d, 26th, 27th, 28th.
Virginia.—1st, 2d, 3d, 6th, 7th, 9th, 20th, 21st, 22d, 26th.
Washington Territory.—3d, 4th, 13th, 14th, 15th, 18th, 21st, 22d, 23d, 25th, 29th, 30th.
West Virginia.—1st, 2d, 5th, 6th, 8th, 9th, 19th, 20th, 21st, 24th, 25th.
Wisconsin.—1st to 10th, 17th, 19th to 29th.
Wyoming.—3d, 4th, 9th to 11th, 13th to 15th, 18th to 26th.

ICE.

Ice formed in the southern parts of the country as follows:
Arkansas.—Lead Hill, 1st, 5th; Little Rock, 5th.
Georgia.—Athens and Forsyth, 2d, 6th.
North Carolina.—Weldon, 3d, 6th; Lenoir, 6th.
Tennessee.—Milan, 1st; Ashwood, 1st, 2d; Nashville, 5th, 6th.
Texas.—Corsicana, 1st.

TEMPERATURE OF WATER.

The following table shows the maximum, minimum, and mean water temperature, as observed at the harbors of the several stations; the monthly range of water temperature; the average depth at which the observations were made, and the mean temperature of the air:

Temperature of water for April, 1887.

Station.	Temperature at bottom.				Mean temperature of the air at station.	Average depth of water, feet and tenths.
	Max.	Min.	Range.	Monthly mean.		
Cedar Keys, Fla.	68.9	60.0	8.9	65.8	67.3	8.1
Charleston, S. C.	68.3	53.5	14.8	62.2	62.6	36.2
Eastport, Me.	38.2	38.4	3.4	36.6	37.5	12.9
Galveston, Tex.	76.8	64.8	12.0	71.5	69.4	14.5
Key West, Fla.	86.2	70.6	15.6	78.5	74.3	20.3
New London, Conn.	46.5	36.5	10.0	41.3	45.0	11.5
New York City.	45.3	36.5	8.8	41.3	47.7	15.2
Pensacola, Fla.	76.0	63.3	12.7	69.0	67.3	17.7
Portland, Me.	42.0	34.8	7.2	38.4	40.2	16.8
Portland, Oregon	52.7	46.6	6.1	48.7	50.2	58.1

*Record for 29 days.

PRECIPITATION (expressed in inches and hundredths).

The distribution of precipitation over the United States and Canada for April, 1887, as determined from the reports of about six hundred stations, is exhibited on chart iii. In the table of miscellaneous meteorological data are given, for each Signal Service station, the total precipitation, with the departures from the normal. The figures above the several geographical districts show the average precipitation and the average excess or deficiency as compared with the normal of each district. The normal for any district may be found by adding the departure to the current mean when the departure is below normal, and subtracting when above.

The precipitation of the month over the entire country east of the Rocky Mountains is generally considerably below the normal, although there are in these districts several large areas in which an excess occurs. The more important of these areas of excess comprises the greater part of Canada, the upper lake region, southern Minnesota, southern Dakota, eastern Wyoming, eastern Colorado, and western Nebraska; the excess is small in the central and western parts of this large area, but in Nova Scotia departures as large as 3.08 in excess of the normal occur. A second area of excessive rainfall embraces the Ohio Valley, Maryland, Delaware, and northern Virginia, within which the departures vary from 0.35 at Washington City to 2.79 at Louisville, Ky. In the southeastern quarter of the country very little rain has fallen during the month, and deficiencies ranging from three to six inches occur in the southern part of the Mississippi Valley and eastern Texas. Most of the precipitation of the Gulf States fell on the 17th, 18th, 22d, and 23d, and was immediately absorbed by the dry soil. At two stations in Florida, Cedar Keys and Jacksonville, an excess of rain fell. The long drought continues in southern and eastern Texas, the rainfall at all stations in these parts of the state being less than one inch, and at several stations none fell, although the normal amount is from three to four inches. In northwestern Texas and the western part of the Indian Territory the drought was broken by several rains; the rains of the 13-14th and 17-18th were heavy and the precipitation of this region is above the normal. The depression of the 22d was accompanied in the Ohio Valley, lower lakes, and Tennessee by unusually heavy rainfall; in Tennessee the greater part of the precipitation of the month fell on this date. All stations in the plateau region and western slope of the Rocky Mountains, except San Francisco and Sacramento, Cal., show an excess of precipitation, but the departures are not large, except along the coast of Washington Territory and Oregon,

where the continuous rainfall of the month has retarded agricultural operations.

The following are some of the most marked departures from the normal precipitation at Signal Service stations:

Above normal.		Below normal.	
	Inches.		Inches.
Tatoosh Island, Wash.	4.94	Vicksburg, Miss.	6.51
Fort Elliott, Tex.	4.48	Shreveport, La.	5.58
Cedar Keys, Fla.	4.25	Little Rock, Ark.	5.39
Astoria, Oregon	3.29	Montgomery, Ala.	5.16
Louisville, Ky.	2.79	Pensacola, Fla.	4.38
Cincinnati, Ohio.	2.69	New Orleans, La.	4.27
Portland, Me.	2.02	Mobile, Ala.	4.03

DEVIATIONS FROM AVERAGE PRECIPITATION.

The following table shows, for certain stations, as reported by voluntary observers, the average precipitation for the month of April for a series of years, the precipitation for April 1887, and the departures from the average:

Station.	County.	Average precipitation for April.	Number of years.	Precipitation for April, 1887.	Departure.
		Inches.		Inches.	Inches.
<i>Arkansas.</i>					
Lead Hill	Boone	5.02	5	3.02	- 2.00
<i>California.</i>					
Sacramento	Sacramento	2.07	21	2.59	+ 0.52
<i>Connecticut.</i>					
Canton *	Hartford	3.39	26	3.10	- 0.29
Hartford *	Hartford	3.30	16	3.49	+ 0.19
Middletown *	Middlesex	3.26	29	3.00	- 0.26
Wallingford *	New Haven	3.74	30	3.19	- 0.55
<i>Dakota.</i>					
Webster	Day	4.87	4	3.94	- 0.93
<i>Florida.</i>					
Archer	Alachua	3.88	4	7.75	+ 3.87
<i>Illinois.</i>					
Collinsville	Madison	3.24	5	3.99	+ 0.75
Mattoon	Coles	4.02	7	2.93	- 1.09
Peoria	Peoria	3.11	31	1.53	- 1.58
Sycamore	De Kalb	4.02	6	1.08	- 2.94
Sandwich	De Kalb	3.55	35	0.57	- 2.98
<i>Indiana.</i>					
Lafayette	Tippecanoe	3.28	8	2.94	- 0.34
Logansport	Cass	2.65	33	2.10	- 0.55
Vevay	Switzerland	3.40	21	7.07	+ 3.67
<i>Iowa.</i>					
Cresco	Howard	2.12	15	1.94	- 0.18
Monticello	Jones	2.56	34	0.83	- 1.73
<i>Kansas.</i>					
Independence	Montgomery	4.46	15	3.23	- 1.23
Wellington	Sumner	2.81	9	3.23	+ 0.42
<i>Louisiana.</i>					
Grand Coteau	Saint Landry	5.66	5	1.77	- 3.89
<i>Maine.</i>					
Cornish	York	2.84	30	3.86	+ 1.02
Orono *	Penobscot	3.04	19	5.08	+ 2.04

Deviations from average precipitation—Continued.

Station.	County.	Average pre- cipitation for April.	Number of years.	Precipitation for April, 1887.	Departure
		Inches.		Inches.	Inches.
Maryland.					
Fallston	Harford	3.14	16	2.51	- 0.63
Massachusetts.					
Amherst	Hampshire	3.14	52	2.78	- 0.36
Cambridge	Middlesex	3.75	46	5.40	+ 1.71
Chestnut Hill	Middlesex	3.63	12	4.74	+ 1.11
Framingham	Middlesex	3.38	13	4.60	+ 1.22
Lake Cochituate	Middlesex	4.09	36	4.45	+ 0.36
Ludlow	Hampden	2.60	12	2.76	+ 0.16
Lynn	Essex	3.77	13	5.24	+ 1.47
Mystic Lake	Middlesex	3.33	12	4.52	+ 1.19
New Bedford	Bristol	3.97	74	5.45	+ 1.48
Somerset	Bristol	3.97	17	4.29	+ 0.32
Springfield	Hampden	3.35	40	3.43	- 0.08
Waltham	Middlesex	3.75	63	4.76	+ 1.01
Williamstown	Berkshire	2.47	21	3.23	+ 0.76
Nevada.					
Carson City	Ormsby	1.42	8	0.65	- 0.77
New Brunswick.					
Saint John	Saint John	3.49	27	3.65	+ 0.16
New Hampshire.					
Concord	Merrimac	2.72	31	2.94	+ 0.22
Hanover	Grafton	1.91	23	1.54	- 0.37
New Jersey.					
Dover	Morris	2.68	4	2.20	- 0.48
South Orange	Essex	2.91	17	2.28	- 0.63
New York.					
Factorville	Tioga	1.76	5	1.45	- 0.31
Palermo	Oswego	2.43	33	1.12	- 1.31
Ohio.					
Wauseon	Fulton	2.52	14	1.52	- 1.00
South Carolina.					
Kirkwood	Kershaw	3.60	20	1.91	- 1.69
Stateburg	Sumter	2.63	7	1.81	- 0.82
Texas.					
New Utm	Austin	3.84	15	0.17	- 3.67
Vermont.					
Lunenburg	Essex	2.74	38	1.75	- 0.99
Newport	Orleans	2.67	13	2.77	+ 0.10
Stratford	Orange	2.33	13	2.50	+ 0.17
Virginia.					
Bird's Nest	Northampton	3.33	18	2.80	- 0.53
Dale Enterprise	Rockingham	4.11	7	5.21	+ 1.10
Variety Mills	Nelson	2.72	8	3.11	+ 0.39
Wytheville	Wythe	3.59	23	2.98	- 0.61
West Virginia.					
Helvetia	Randolph	3.95	11	4.91	+ 0.96

• From the "Bulletin of the New England Meteorological Society."

The following notes in connection with this subject are furnished by voluntary observers:

Alabama.—Livingston, Sumter Co.: the normal precipitation of the first four months of the year is 24.77; the total amount of the corresponding months of the current year is 13.05 below the normal.

Indiana.—Logansport, Cass Co.: the snowfall of the month, 4.40, is 2.07 above the average April snowfall of the past thirty-three years; in that time the greatest April precipitation, 7.30, fell in 1864, and the least, 1.42, in 1870.

Iowa.—Monticello, Jones Co.: during the past thirty-four years the largest April precipitation, 6.78, fell in 1862; the least, 0.63, in 1863.

Kansas.—Wellington, Sumner Co.: during the past nine years the largest April precipitation, 4.84, fell in 1885; the least, 0.54, in 1880.

Maine.—Cornish, York Co.: the snowfall of the present month, fourteen inches, is five inches above the average April snowfall of the past thirty years.

Maryland.—Fallston, Harford Co.: during the past sixteen years the largest April precipitation, 8.11, fell in 1874; the least, 1.28, in 1881.

Cumberland, Alleghany Co.: table of April precipitation in the past fifteen years:

Year.	Precipitation.	Year.	Precipitation.
	Inches.		Inches.
1873	2.30	1882	4.53
1874	6.50	1883	2.57
1875	1.20	1884	1.96
1876	1.30	1885	1.79
1877	2.20	1886	2.18
1878	2.10	1887	2.61
1879	0.60		
1880	2.44	Average	2.40
1881	1.72		

Massachusetts.—Worcester, Worcester Co.: the normal precipitation for April is 3.65; snow four inches; during April, 1887, the rain and melted snow aggregated 2.84; the unmelted snow, 17.8 inches, the heaviest snowfall in April for half a century.

Pennsylvania.—Dyberry, Wayne Co.: the total snowfall of the past winter, 128 inches, is 59 inches more than the average of the past thirty-three years.

South Carolina.—Stateburg, Sumter Co.: during the past seven years the largest April precipitation, 4.17, occurred in 1883; the least, 1.24, in 1886.

Virginia.—Dale Enterprise, Rockingham Co.: in the past seven years the largest April precipitation, 7.13, occurred in 1882; the least, 0.75, in 1881.

Table of excessive and greatest monthly precipitation for April, 1887.

Station.	Specially heavy.	Largest monthly.	Station.	Specially heavy.	Largest monthly.
	Date.	Amt.		Date.	Amt.
		Amount.			Amount.
Alabama.			Massachusetts.		
Carrollton	22	2.88	Nantucket a.		7.17
Florence	22	2.00	Nantucket b.		6.23
Valley Head	22, 23	3.15	Missouri.		
Colorado.			Troy		6.20
Pike's Peak	12, 13	2.64	Nebraska.		
Dakota.			Fort Niobrara	12, 13, 14	3.36
Deadwood	21, 22	2.54	Nevada.		
Florida.			Fort McDermitt	11	2.20
Merritt's Island		8.24	North Carolina.		
Archer	24, 25	4.50	Lenoir	22	2.80
Alva	14	2.00	Flat Rock	23	2.50
Duke	23, 24	2.07	Ohio.		
Tallahassee	23, 24, 25	4.10	Georgetown	18	2.70
Manatee	13, 14	2.72	Do	22, 23	3.29
Cedar Keys	23, 24	3.83	Waverly	18	2.84
Georgia.			Do	22	2.40
Quitman	23, 24, 25	3.20	Logan	18	2.91
Foreyth	22, 23	2.22	Clarksville	22	2.02
Illinois.			Portsmouth	21, 22	3.15
Sumner	22	2.70	College Hill	17	2.50
Olney	17, 18	2.40	Do	22	3.25
Do	21, 22	2.48	West Milton	22	2.00
Flora	22	2.25	Jacksonborough	17, 18	2.00
Centralia	22	2.20	Willow Springs	22	2.24
Mount Carmel	17, 18	2.42	Ruggles	18	2.00
Albion	17	2.20	Cincinnati	17, 18	2.36
Do	22	2.42	Newcomerstown	18	2.07
Fairfield	18, 19	2.13	Hanging Rock	22	3.40
Do	22, 23	2.00	Washington C.H.	18	2.58
Indiana.			McConnellsville	18	2.49
Jeffersonville	17, 18	2.97	Oregon.		
Do	21, 22	3.76	Mount Angel		6.93
Vevay	18	2.00	Astoria		6.83
Do	21, 22	3.67	Bandon		6.47
Sunman	21, 22	2.63	Pennsylvania.		
Laconia	17, 18	2.87	Pittsburg	29, 30	2.60
Do	22, 23	2.35	Tennessee.		
Butlerville	22	2.01	Farmingdale	22, 23	2.07
Kansas.			Chattanooga	22, 23	2.64
W. Leavenworth	16, 17	3.80	Knoxville	22, 23	2.37
Wellington	16	2.43	Grief	22	2.00
Kentucky.			Fostoria	22, 23	2.80
Louisville	22, 23	3.70	Manchester	22	2.28
Frankfort	17, 18	2.72	Fayetteville	22	2.09
Do	22	3.17	Parkville	22	2.47
Midway	22	2.06	Texas.		
Bowling Green	18	2.01	Fort Elliott		6.06
Maine.			Virginia.		
Kent's Hill	28, 29, 30	3.08	Rappahannock	18	2.38
Orono	28, 29, 30	3.26	Washington Ter.		
Bar Harbor	28, 29, 30	2.82	Tatoosh Island		8.51
			Fort Spokane	10, 11	2.00

SNOW.

The dates on which snow fell in the various states and territories are as follows:

Arizona.—8th, 10th to 14th, 16th, 17th.

California.—Fort Bidwell, 7th, 9th, 12th, 20th, 30th.

Colorado.—8th to 18th, 20th, 23d to 25th.

Connecticut.—1st, 2d, 13th, 18th, 19th, 26th.

Dakota.—3d, 9th to 16th, 19th, 21st to 24th.

Delaware.—Cape Henlopen, 1st, 2d.

Distriet of Columbia.—Washington City, 1st, 2d.

Idaho.—2d, 10th, 11th, 17th, 30th.

Illinois.—1st, 4th, 14th, 18th.

Indiana.—1st, 4th, 18th, 24th.

Iowa.—3d, 4th, 17th, 21st to 24th, 26th.

Kansas.—Wyandotte, 17th; Fort Hays and Belleville, 22d.

Maine.—1st to 6th, 16th to 20th, 26th, 27th.

Maryland.—1st, 2d, 5th.

Massachusetts.—1st, 2d, 3d, 8th, 18th, 19th, 23d, 26th.

Michigan.—1st, 2d, 4th to 7th, 15th, 16th, 18th, 22d to 26th.

Minnesota.—2d, 3d, 4th, 10th, 22d to 25th.

Missouri.—Saint Louis, 18th.

Montana.—3d, 9th, 11th, 12th, 14th, 15th, 17th, 20th to 23d, 30th.

Nebraska.—2d, 3d, 13th, 14th, 16th, 17th, 19th, 21st to 24th.

Nevada.—9th, 10th, 11th, 30th.

New Hampshire.—1st, 2d, 4th to 6th, 9th, 10th, 15th to 18th, 26th to 30th.

New Jersey.—1st, 2d, 18th, 19th.

New Mexico.—Fort Wingate, 10th, 11th, 12th, 16th; Santa Fé, 12th, 13th; Fort Union, 12th, 16th, 23d, 24th; Fort Bayard, 13th; Gallinas Spring, 24th.

New York.—1st, 2d, 4th, 5th, 6th, 12th, 14th, 16th to 19th.
North Carolina.—Charlotte, 1st; Raleigh and Weldon, 1st, 2d.
Ohio.—1st to 7th, 18th.
Oregon.—9th, 10th, 11th, 20th, 29th, 30th.
Pennsylvania.—1st, 2d, 4th, 5th, 17th, 18th, 19th, 29th.
Rhode Island.—1st, 2d, 18th.
South Carolina.—Spartanburg and Stateburg, 1st.
Utah.—8th to 12th, 14th, 15th, 17th, 18th, 21st, 23d, 24th, 30th.
Vermont.—5th, 17th, 18th, 19th, 27th, 30th.
Virginia.—1st, 2d, 25th, 26th.
Washington Territory.—2d, 11th, 29th, 30th.
West Virginia.—Clarksburg, 5th.
Wisconsin.—3d, 4th, 5th, 22d to 25th.
Wyoming.—3d, 10th to 15th, 17th, 18th, 21st to 23d, 30th.

MONTHLY SNOWFALLS.

[Expressed in inches and tenths.]

The following stations report a monthly snowfall of two inches or more:

California.—Summit, 58; Cisco, 38; Emigrant Gap, 24; Truckee, 20; Tehachapi, 2.
Colorado.—Pike's Peak, 50.2; Las Animas, 3.
Connecticut.—North Colebrook, 14; Canton, 9; Collinsville, 8.7; Middletown, 7; Hartford, 6; New Haven, 3.
Dakota.—Deadwood, 45.1; Fort Buford, 8.
Illinois.—Paris, 3; Eberle, 2.5; Mason City and Griggsville, 2.
Indiana.—Logansport, 4.4; Fort Wayne, 3.
Iowa.—Bancroft, 2.
Maine.—Portland, 16.6; Belfast, 16; Cornish and Orono, 14; Kent's Hill, 12; Lewiston, 11.5; Eastport, 7.9; Mayfield, 6.5; Bar Harbor, 4.
Maryland.—Fallston, 4; New Midway, 3.
Massachusetts.—Newburyport, 20.5; Randolph and Fall River, 20; Blue Hill Observatory (base), 19; Worcester, 17.8; Milton and Taunton *a*, 17; Taunton *b*, 16; Concord, 15.1; Chestnut Hill, Lawrence, New Bedford *a*, South Hingham, and Boston, 15; New Bedford *b*, 14.5; Somerset, 14; Cambridge, 13; Cotuit and Monson, 12; Worcester and Fitchburg *a*, 11.2; Westborough, 11; Fitchburg *b* and North Truro, 9.5; Springfield, 8.6; Dudley, 8; Amherst *a*, 7.7; Ludlow, 7; Nantucket, 6.8; Amherst *b*, 6.5; Rowe, 6; Williamstown, 4.
Michigan.—Marquette, 14.4; Swartz Creek, 7.2; Escanaba, 5.3; Lansing *a*, 3.5; Hudson, 3.4; Lansing *b*, 3.3; Alma and Ovid, 3; Greenville and Birmingham, 2.7; Mackinaw City and Traverse City, 2.5; Alpena, 2.3; Thornville and Kalamazoo, 2.
Minnesota.—Red Wing, 11; Rochester, 9; Duluth, 8.3; Winona, 6; Albert Lea, 5.5; Sherburne, 4.6; Minneapolis, 4.4; Mankato, 4; Moorhead, 2.8; Saint Vincent, 2.5.
Missouri.—Saint Louis, 4.
Montana.—Fort Maginnis, 18.4; Helena, 4.3; Poplar River, 3.4.
Nebraska.—North Platte, 4.4; Hay Springs, 3.
Nevada.—Toano, 9.8; Otego, 5.4; Winnemucca, 3.3; Tacoma, 3.
New Hampshire.—Mount Washington, 39.6; Nashua and Manchester *a*, 11; Concord *a*, 8; Berlin Mills, 7.5; Manchester *b* and Concord *b*, 7; Walpole, 5.5; West Milan, 4.5; Shelburne, 4; Manchester *c*, 2.7; Hanover, Quincy, and Stratford, 2.
New Jersey.—Vineland, 7; Dover, 6.5; South Orange, 4.5; Atlantic City, Roseland, and Clayton, 4; Beverly, 2.8; Moorestown and Egg Harbor City, 2.
New Mexico.—Santa Fé, 5.
New York.—Factoryville, 8.5; White Plains, 8; North Concord, 7.5; Auburn and Humphrey, 7; Penn Yan, Setauket, and Lebanon Springs, 6; Boyd's Corners, 5.7; Menands, 4.5; New York City, 4.1; Brooklyn, 4; Albany, 3.5; Cooperstown and Le Roy, 3; Buffalo, 2.6; Ithaca, 2.
North Carolina.—Raleigh, 17.
Ohio.—Cleveland *a*, 9.9; Tiffin *a*, 9; Tiffin *b*, 7; Hiram, 6.5;

Ruggles, 6; Garrettsville, 5.5; Sandusky, 5; Cleveland *b*, 4; Napoleon, 3.2; Wauseon and Toledo, 2.4.

Pennsylvania.—Dyberry, 14; Blooming Grove, 11.5; Wellsborough, 10.2; Wilkesbarre and Wysox, 10; Grampian Hills, 8; West Chester, 6; Bethlehem, 5.5; Fallsington, 3.8; State College, 3.1; Phillipsburg, 3.

Rhode Island.—Block Island, 13.2; Bristol, 11.5; Woonsocket, 10.2; Providence, 10; Olneyville, 9.

Utah.—Frisco, 5.5; Corinne, 4; Salt Lake City, 2.5.

Vermont.—Marlborough, 9.6; Jacksonville, 6.2; Vernon, 5; Townshend, 4.5; Brattleborough, 4.2; Lunenburg and Strafford, 4; Northfield, 3.

Virginia.—Bird's Nest, 2.

Wisconsin.—Eau Claire, 9; La Crosse, 3; Wausau, 2.5.

Wyoming.—Cheyenne, 12.

DEPTH OF UNMELTED SNOW ON GROUND AT END OF MONTH.

[Expressed in inches and tenths.]

Colorado.—Pike's Peak, 13.

Dakota.—Deadwood, 3.

New Hampshire.—Mount Washington, 20.

Utah.—Salt Lake City, 0.7; Frisco, 0.5.

HAIL.

Mason City, Cerro Gordo Co., Iowa: at 2.30 p. m. of the 14th a heavy thunder-storm, accompanied by hail, set in. The hail fell in large quantities for about fifteen minutes and struck the ground with great force; a number of windows were broken. During the storm a barn in the southeast part of the town was struck by lightning and burned. A severe thunder-storm occurred during the same afternoon at Winona, in the southeastern part of the state. The rainfall was large, and was accompanied for ten minutes by a heavy fall of hail.

Lockport, Niagara Co., N. Y.: a heavy rain storm, accompanied by hail and vivid lightning, passed over this town between 4 and 5 p. m. of the 15th. Hail as large as chestnuts fell to a depth of two inches.

Stateburg, Sumter Co., S. C.: during a heavy thunder-storm on the afternoon of the 15th hail fell, more or less heavily, over a belt several miles in width, extending from Clarendon Depot to Providence, a distance of about ten miles.

Yazoo, Yazoo Co., Miss.: rain fell during the afternoon of the 21st and was accompanied by a very severe hail storm. Stones fell for a few minutes as large as hens' eggs, breaking windows and beating leaves and young fruit from trees. Much damage was done to growing crops. At Rolling Fork, Sharkey Co., several stones were found that measured five inches in circumference. Holes were broken in roofs, and trees were partly stripped of foliage.

Strawberry Plains, Jefferson Co., Tenn.: on the afternoon of the 28th this county was visited by a heavy thunder-storm, with destructive hail. The stones were about the size of part-ridge eggs and fell to considerable depth, doing much damage to vegetation.

Reidsville, Rockingham Co., N. C.: on the 29th, five miles northwest of this place, hail fell in large quantities. Some of the stones were over an inch in diameter.

Hail is also reported to have occurred as follows:

Alabama.—Livingstone, 18th; Mobile and Montgomery, 23d.

Arizona.—Prescott, 8th, 15th, 16th; Fort McDowell, 10th; Fort Bowie and Fort Grant, 12th.

Arkansas.—Little Rock, 4th; Fort Smith, 22d; Lead Hill, 25th.

California.—Benicia Barracks, 10th; Fort Bidwell, 20th.

Colorado.—Denver, 13th; Montrose, 17th.

Dakota.—Fort Totten, 2d; Huron, 10th; Fort Pembina, 10th, 22d; Fort Yates, 11th; Fort Abraham Lincoln, 19th; Webster, 22d, 25th.

Delaware.—Cape Henlopen, 19th.

Florida.—Jacksonville, 23d.

Georgia.—Quitman, 8th.

Idaho.—Boisé City, 2d; Fort Sherman, 2d, 17th; Cœur d'Alene, 2d, 17th, 18th; Boise Barracks, 20th.

Illinois.—Cairo and Windsor, 21st; Rockford, 24th.
Indiana.—Jeffersonville, 14th; Logansport, 24th, 28th; But-
 lerville, Laconia, and Vevay, 28th.
Indian Territory.—Fort Reno, 22d.
Iowa.—Des Moines, 10th; Dubuque, 22d; Keokuk, 25th,
 27th; Clinton, 27th.
Kansas.—Fort Hays, 20th; Globe, Marydale Farm, Man-
 hattan, and Wakefield, 21st; Independence, 22d; El Dorado,
 27th.
Kentucky.—Harper's Ferry, 28th.
Maryland.—Ocean City, 18th.
Michigan.—Mackinaw City, 4th; Lansing, 29th.
Minnesota.—Moorhead, 11th; Saint Paul, 14th.
Mississippi.—Vicksburg, 21st.
Missouri.—Saint Louis, 21st, 22d; Centreville, 26th; Spring-
 field, 30th.
Montana.—Poplar River, 30th.
Nebraska.—Fort Robinson, Omaha, and Valentine, 10th;
 Marquette, 23d.
Nevada.—Winnemucca, 20th.
New Jersey.—Beverly, Dover, and Moorestown, 18th.
New Mexico.—Santa Fé, 16th, 18th; Fort Union, 19th.
New York.—Menands, 12th; Palmyra, 14th; Rochester, 15th;
 Setauket, 18th; Humphrey, 21st, Oswego, 23d.
North Carolina.—Reidsville, 1st; Smithville, 20th.
Ohio.—Jacksonborough, 15th, 18th; Sandusky, Elyria, and
 Garrettsville, 18th; Toledo, 27th; Napoleon, Portsmouth,
 Wauseon, Westerville, and Yellow Springs, 28th.
Oregon.—Albany, 2d, 10th, 12th, 17th, 30th; East Portland,
 14th; Portland, 17th, 29th, 30th.
Pennsylvania.—Dyberry, 15th; Bethlehem, Fallsington,
 Grampian Hills, Quakertown, and Wellsborough, 18th; Pitts-
 burg, 28th.
South Carolina.—Spartanburg, 15th; Stateburg, 15th, 16th;
 Kirkwood, 16th.
Tennessee.—Nashville, 28th.
Texas.—Fort Davis, 8th, 12th; Silver Falls, 12th; Cleburne,
 30th.
Utah.—Frisco, 16th.
Vermont.—Charlotte, 28th.
Virginia.—Wytheville and Dale Enterprise, 15th; Lynch-
 burg and University of Virginia, 18th, 28th; Marion and
 Variety Mills, 28th.
Washington Territory.—Fort Townsend, 17th; Spokane Falls,
 24th.
West Virginia.—Middlebrook, 15th; Parkersburg, 27th,
 28th.
Wisconsin.—Madison, 22d; Beloit, 24th; Green Bay, 28th.
Wyoming.—Fort Laramie, 18th

SLEET.

Sleet fell in the various states and territories during the
 month, as follows: Fort Apache, Ariz., 11th; Lead Hill, Ark.,
 4th; North Colebrook, Conn., 13th, 18th; New Haven, Conn.,
 18th; Fort Totten, Dak., 9th, 10th, 11th, 14th; Bismarck,
 Dak., 11th; Fort Sully, Dak., 22d; Charleston, Ill., 18th;
 Jacksonville, Ill., 20th; Indianapolis, Ind., 17th, 18th; Keo-

kuk, Iowa, 17th; Cresco and Cedar Rapids, Iowa, 24th; East-
 port, Me., 2d, 3d; Boston, Mass., 18th; Fort Brady, Mich.,
 3d, 11th; Marquette, Mich., 11th; Central College, Mo., 17th,
 18th; Valentine, Nebr., 14th, 22d; Hay Springs, Nebr., 21st,
 22d, 23d; Beverly, N. J., 18th; New York City, 18th; Gar-
 rettsville and Tiffin, Ohio, 18th; Wauseon, Ohio, 18th, 24th,
 27th; Bethlehem, Pa., 18th; Erie, Pa., 26th; Frisco, Utah,
 30th; Norfolk, Va., 1st; La Crosse, Wis., 22d; Milwaukee,
 Wis., 23d, 24th.

DROUGHT.

Although rain accompanied the area of low that crossed
 Texas, the Indian Territory, and Kansas on the 18th, yet at
 the end of the month the long drought was practically unbroken,
 except in Kansas, where the rainfall of the 18th was quite
 heavy. In Texas the drought now extends from the western
 grazing country eastward to Louisiana, but decreases in
 severity as it approaches the eastern boundary. In central
 and eastern Texas, embracing the principal cotton-growing
 counties of the state, only a few light showers have fallen
 during the month. Reports from places in Missouri, Iowa,
 and northern Illinois state that crops were suffering from the
 lack of rain; in central Missouri considerable rain fell during
 the latter half of the month.

The following notes are from observers:

At San Antonio, Tex., although light rain fell on the 4th, 9th, 10th, 11th,
 13th, 14th, and 16th, the total precipitation of the month was only 0.60 of an
 inch. Reports from adjoining counties indicate that their condition is even
 worse than the country immediately adjacent to San Antonio. The observer
 states that the dry grass from last year is exhausted, and as none has grown
 this spring the only forage for cattle is the prickly pear. Stock are dying
 rapidly. Numbers of families have deserted their homes and farms in search
 of a more favored locality. All hope of making the usual grain crop this sea-
 son has been abandoned.

New Ulm, Austin Co., Tex.: all interests are suffering from the drought;
 cattle are in need of grass and water; corn and cotton are in bad condition
 and will have to be replanted if rain falls. The normal April rainfall for this
 section, as deduced from the observations of the past fifteen years, is 3.84
 inches; the total of the current month is only 0.17 inch, and is the least that
 has fallen in any April during that time. The normal rainfall of the seven
 months ending April 30th is 31.70 inches; the total amount of the correspond-
 ing months in 1886-'87 is 7.92, a deficiency of 23.78. In 1873 eight inches of
 rain fell in April.

Bellefonte, Republic Co., Kans.: the first seventeen days of the month were
 remarkable for dry weather and the frequency and force of dust storms. On
 the 3d and 9th, during wind storms, dust filled the air to such an extent that
 buildings one hundred feet distant were visible only at intervals.

Independence, Montgomery Co., Kans.: the first heavy rain in this section
 since September 4, 1886, fell on the 16th and 17th. On the 3d, during a wind
 storm, the sky was obscured by dust.

Salina, Salina Co., Kans.: the month has been unusually dry, the total pre-
 cipitation, 2.06 inches, being the least that has fallen in any April during the
 past five years.

Grand Coteau, Saint Landry Parish, La.: the total amount of rainfall for the
 five months from December, 1886, to April, 1887, inclusive, 12.20 inches, is
 less than one-half of the normal amount; the soil is dry and crops late.

Vicksburg, Miss.: on the 18th a gale, with very heavy rain, occurred, break-
 ing the drought that had prevailed throughout this section. Crops of all kinds
 were backward, and, except where irrigated by the overflow of the river, no
 cotton had made its appearance above ground.

Tucson, Ariz.: cattle are dying in large numbers from want of water and food;
 the Rillito River is dry for the first time in many years.

WINDS.

The most frequent directions of the wind during April, 1887,
 are shown on chart ii by the arrows flying with the wind; they
 are also given in the table of miscellaneous data. The general
 movement of the air along the Atlantic coast, in New England,
 and the Middle States, has been from the northwest; in the
 Gulf States, Ohio Valley, Lake region, and the central Missis-
 sippi valley, from the south or southwest; in Dakota and the
 Missouri Valley, from the north or northwest; in California,
 from the west or northwest. In the remaining districts no
 general direction has prevailed.

HIGH WINDS (in miles per hour).

Wind-velocities of fifty or more miles per hour, other than

the maximum velocities for the month, which are given in the
 table of miscellaneous data:

Mount Washington, N. H., 60, ne., 2d; 92, nw., 3d; 89, nw.,
 6th; 71, nw., 8th; 92, nw., 10th; 96, nw., 11th; 61, nw., 12th;
 58, nw., 13th; 50, nw., 18th; 59, n., 19th; 58, nw., 20th; 66, s.
 23d; 51, s., 24th; 50, nw., 25th; 62, nw., 26th; 70, nw., 27th;
 78, s., 28th; 60, se., 29th; 85, nw., 30th.

Pike's Peak, Colo., 59, nw., 1st; 65, w., 3d; 58, w., 4th; 52,
 sw., 11th; 52, nw., 19th; 70, w., 20th; 52, nw., 22d; 60, n., 25th;
 52, w., 26th.

Dodge City, Kans., 51, nw., 22d.

Fort Elliott, Tex., 56, nw., 22d.